REMARKS

Claims 1-41, all the claims pending in the application, stand rejected on prior art grounds. Claims 8-14 were objected to as being identical to claims 1-7. Applicants respectfully traverse these rejections based on the following discussion.

I. Objections

Claims 8-14 were objected to as being identical to claim 1-7. Original independent claim 8 was not identical to original independent claim 1. Original claim 1 included the language "said detailed information comprising at least one of the number of failures,...". Whereas, original independent claim 8, contained the language "said detailed information comprising the number of failures, ...". Claims 1 and 8 are amended herein to further overcome this objection.

II. The Prior Art Rejections

Claims 1-41 stand rejected under 35 U.S.C. §102(e) as being anticipated by Kipersztok, et al., (U.S. Patent No. 6,574,537), hereinafter referred to as Kipersztok. The applicants respectfully traverse these rejections as Kipersztok does not teach or suggest several of the patentable features of the claimed invention.

Kipersztok teaches a diagnostic system and method (see Abstract) that receives inputs relating to observed symptoms that are indicative of one or more failed components, the inputs are correlated with at least one suspect component that is capable of causing the observed symptoms (e.g., different indicator lights on or off (see Figure

5D) upon failure, and the suspect components are displayed in a prioritized list based upon the relative likelihood that the respective suspect components caused the observed symptoms. A prioritized listing of tests that can be conducted to refine the identification and prioritization of the suspect components can also be displayed. The system can also include a summary log feature in which a mechanic can document a diagnostic session, test results, and any actions taken or deferred as a result of the diagnostic session.

The present invention teaches a system and method that uses repair histories to predict the likely cause of a current failure (see paragraph [0015]). The invention receives history input from a user after an item of equipment is repaired and stores detailed information regarding the repair in a database (see paragraph [0019]). Specifically, the database includes data on the items of equipment including the component hierarchy, failure descriptions, common problems, actions and processes used to repair the components, etc. (see paragraph [0015]). The invention calculates the probability of failure of each component in an item of equipment (see paragraph [0020]). The invention also calculates statistical values including the mean time between failures after each repair by only using successful repairs and ignoring repairs that were effected within a predetermined time prior to the most recent failure for the same problem and component set (see paragraphs [0019-0020]). The information from the database can then be retrieved and processed in different ways (see paragraph [0019]).

For example, the system can receive an identification for an item of equipment that needs repair (see paragraph [0018]). The user is provided with a list of common problems and a component hierarchy for the same type of equipment (see paragraph

[0023]). The user can select the problem that describes the current failure and/or a specific component from the component hierarchy (e.g., in a suspect area) (see paragraph [0023]). The system searches the history data for fails by the tool itself or other tools of the same type that match the selected problem and/or component and provides the user with the retrieved information (see paragraphs [0024]-[0026]). Information for the selected tool is listed first, followed by information for other tools of the same type (see paragraph [0024]). Thus, the system uses repair histories of the item and same type items in order to more accurately identify parts that may need to be repaired or replaced (see paragraphs [0005] and [0009]).

More specifically, regarding independent claims 1, 8, 15, 20, 27 and 34, Kipersztok does not teach or suggest the following features: (1) "based on said history data, calculating and storing in said database failure probabilities for components in said component hierarchies and mean times between failures for said components in said component hierarchies;" (2) "providing said user with a list of common problems and a component hierarchy for same type items;" (3) "receiving input from said user in response to said list of common problems and said component hierarchy, wherein said input comprises a selection of at least one of a common problem from said list and a component from said component hierarchy;" (4) "in response to said input from said user, searching said database for detailed information that matches said selection for said item of equipment and for other same type items of equipment;" and (5) providing said user with said detailed information." Nor does Kipersztok teach the similar features in independent claim 41.

Regarding the feature of "based on said history data, calculating and storing in said database failure probabilities for components in said component hierarchies and mean times between failures for said components in said component hierarchies," the Examiner reads the time required to conduct a test in col. 15, lines 45-48 of Kipersztock "as the mean time between failures because the time to complete a test is the time before another test to be performed on another failure." The Applicants respectfully disagree. The cited portion of Kipersztok provides "In an illustrated example, the predetermined criteria can be selected to be any combination of the time required to conduct a test and the value of the information provided by the test results..." However, if taken in context (see col. 15, lines 23-56), it is clear that the feature disclosed is one in which the user is provided with a list of one or more tests that can be performed in order to help in the identification of the suspect components. The list is preferably prioritized based on the ability of the test to differentiate between suspect components. The list of tests can also be prioritized based on the time it will take to perform the test. In illustrated example, as cited by the Examiner, the list can be prioritized based on both the time it takes to perform each test and on the value of the information that each test provides. Contrary to the Examiner's assertion, there is nothing disclosed which teaches or suggests calculating the mean time between failures for a component.

Regarding the feature of "providing said user with a list of common problems and a component hierarchy for same type items," the Examiner reads the log book of col. 14, lines 36-41, Figure 5D, Figure 6 and reference 52 "as having a list of common problems." However, col. 14, lines 36-41 and Figure 5D refer to a method step in Kipersztok in

which a mechanic inputs observed symptoms (e.g., indicator lights on or off) into the system either directly or by selecting from a list of possible symptoms only. Once the observed symptoms are identified, the diagnostic model is executed and the user is then provided with a prioritized list of suspect components (see col. 14, lines 63-66) that may cause those symptoms. Contrarily, in the present invention the user is provided with a list of common problems that are associated with same type equipment and not just with a list of all symptoms that may possibly occur. The user is also provided with an entire component hierarchy for the item of equipment and not just a list of components suspected by the system as having caused selected observed symptoms.

Regarding the feature of "receiving input from said user in response to said list of common problems and said component hierarchy," the Examiner reads Figure 6 as disclosing "the user has inputted a response from the list provided from the log book." The Applicants respectfully disagree. Since the user is not presented with either a list of common problems or a component hierarchy, the user can not provide input in response to a list of common problems and component hierarchy. Furthermore, the system necessarily can not search the database for detailed information in response to a selection of a component and/or a common problem, when not such a selection is never made.

More specifically, Figure 5L of the cited reference and the associated text (see col. 16, lines 24-50) refer to a summary log which displays the observed symptoms in a specific item of equipment that are entered by the user (see item 52 of Figure 6) and test results (which may be conducted to refine the list of suspected components, see items 62-66 of Figure 6). The summary log can also include a record of repairs and may be saved

as part of the maintenance log for that item of equipment. The summary log is simply a log and does not amount to the database of the present invention which contains component hierarchies, failure descriptions, common problems, repair histories, etc. There is nothing in the illustration of the summary log which indicates that the user has made a selection of problem(s) from a list of common problems and/or of component(s) from an entire component hierarchy before deciding which component to repair/replace.

Furthermore, Figure 6 indicates that the user in Kipersztok makes only three selections: (1) a selection of observed symptoms from a list of possible symptoms at process 52, (2) a selection of a component to replace/repair from a prioritized list of suspect components (60), and (3) a selection of test to help refine the suspect components list from a prioritized list of tests (62). That is, Kipersztok simply displays a list of suspect components in response to selected symptoms (58). If one of those components is determined to be the likely cause that one component can be repaired or replaced (60-72). If that doesn't work or if no one component is determined to be the likely cause, the user selects a test that can be performed to narrow down which component should be repaired or replaced (62-66). Repair/replacement activity is documented in the maintenance log (84). Nothing in the cited reference indicates that the user makes a selection of one or more common problems from the presented list of common problems and/or one or more components from the component hierarchy in order to retrieve detailed information from the database, including history data, that matches the selected problem(s) and/or the selected component(s) in the item of equipment and also in same type items of equipment.

Consequently, regarding independent claims 8 and 15, Kipersztok also does not teach or suggest the feature of "wherein if said selection comprises said component, said detailed information comprises the number of failures, the probability of failure, the mean time between failures, the occurrence of the most recent failure, and the next expected failure for said component in said item of equipment and in said other same type items." That is, no where in Kipersztok does it disclose providing the user with the listed detailed information for both the specified item of equipment and for same type items. Furthermore, Kipersztok also does not disclose searching for and providing the user with the number of failures, the mean time between failures, the occurrence of the most recent failure, or the next expected failure for any component. For example, the Office Action cites col. 9, lines 21-24 and col. 14, lines 63-66 as disclosing the feature of providing the user with "the number of failures" because the Examiner reads the number of suspect components as failures. The Applicants respectfully disagree because the cited portions of Kipersztok refer to a method step in which a number of components that could be the cause of the observed symptoms (e.g., light indicators) are identified and displayed to the user. Suspect components may or may not require repair or replacement and there is no indication that history data including the number of failures for the suspect components is provided to the user. Additionally, the Office Action cites col. 15, lines 45-48 as disclosing the feature of providing the user with "the mean time between failures;" however, the Applicants respectfully disagree, as discussed in detail above. Finally, the Office Action does not cite any portion of Kipersztok as disclosing providing the user with information indicating the occurrence of the most recent failure or with the next

expected failure.

Similarly, regarding independent claims 15 and 20, Kipersztok also does not teach or suggest the following feature: "wherein if said selection comprises said common problem alone, said detailed information comprises at least one of the number of failures, the probability of failure, the mean time between failures, the occurrence of the most recent failure, and the next expected failure for all components in said item of equipment and in said other same type items that are associated with said common problem." That is, no where in Kipersztok does it disclose providing the user with the listed detailed information for all components in the item of equipment (and in same type items) that are associated with the selected common problem. Furthermore, as discussed above, Kipersztok also does not disclose searching for and providing the user with the number of failures, the mean time between failures, the occurrence of the most recent failure, or the next expected failure for any component.

Regarding independent claim 15, Kipersztok does not teach or suggest the feature of "recalculating and storing said failure probabilities and said mean times between failures, wherein said recalculating of said mean times between failures comprises ignoring repairs where the same problem occurred within a predetermined time of the most recent failure." Thus, as each repair is processed for a tool, it is compared to prior failures for that same tool. If the tool is repaired again for the same problem within a user defined time period, the prior repair is deemed unsuccessful and will not be included (i.e., will be ignored) in future calculations such as, in calculations of mean times between failures, for that tool or for any other too of the same type (see paragraph

[0019]). The Office Action cites col. 15, lines 45-48 as disclosing the feature of "calculating said mean time between failures by ignoring repairs where the same problem occurred within a predetermined time of the most recent failure." Specifically, the Examiner reads "the time required to conduct a test as the mean time between failures because the time to complete a test is the time before another test to be performed on another failure which means that a repair is ignored." The Applicants respectfully disagree. As discussed above, the cited portion of Kipersztok provides "In an illustrated example, the predetermined criteria can be selected to be any combination of the time required to conduct a test and the value of the information provided by the test results..." However, if taken in context (see col. 15, lines 23-56), it is clear that the feature disclosed is one in which the user is provided with a list of one or more tests that can be performed in order to help in the identification of the suspect components. The list is preferably prioritized based on the ability of the test to differentiate between suspect components. The list of tests can also be prioritized based on the time it will take to perform the test. In illustrated example, as cited by the Examiner, the list can be prioritized based on both the time it takes to perform each test and on the value of the information that each test provides. Contrary to the Examiner's assertion, there is nothing disclosed which teaches or suggests calculating the mean time between failures for a component or how it is calculated, much less that this mean time between failures is equivalent to the time required to conduct a test or that somehow a repair is ignored.

Therefore, independent claims 1, 8, 15, 20, 27, 34, and 41 are patentable over Robertson. Further, dependent claims 2-7, 9-14, 16-19, 21-26, 28-33 and 35-40 are

similarly patentable, not only by virtue of their dependency from a patentable independent claim, but also by virtue of the additional features of the invention they define. Moreover, the Applicants note that all claims are properly supported in the specification and accompanying drawings, and no new matter is being added. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

III. Formal Matters and Conclusion

With respect to the rejections to the claims, the claims have been amended, above, to overcome these rejections. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections to the claims.

In view of the foregoing, Applicants submit that claims 1-41, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0456.

Respectfully submitted,

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